

CLAIMS:

1. A cutting apparatus comprising a rotary cutter having an axial-direction, a radial-direction and a circumferential-direction, said rotary cutter has an outer peripheral surface and includes
a rotary shaft member;
at least one knife member joined to said shaft member, at least a portion of said knife member extending axially along said shaft member and extending radially outward from said shaft member; and
at least one peripheral bearing member joined to said shaft member, at least an operative portion of said peripheral bearing member extending radially outward from said shaft member and extending circumferentially about said shaft member.
2. A cutting apparatus as recited in claim 1, wherein a pair of axially spaced-apart, peripheral bearing members are joined to said shaft member, at least an operative portion of each peripheral bearing member extending radially outward from said shaft member and extending circumferentially about said shaft member.
3. A cutting apparatus as recited in claim 1, wherein said knife member is substantially fixedly attached to said shaft member.
4. A cutting apparatus as recited in claim 1, wherein a plurality of said knife members are affixed to said shaft member and circumferentially spaced-apart along said outer peripheral surface of said shaft member.
5. A cutting apparatus as recited in claim 1, wherein said peripheral bearing members are located proximate axially-opposed ends of said knife member.
6. A cutting apparatus as recited in claim 1, wherein a radial-position distance of a radially-distal edge of said knife member is not more than a radial-position distance of a radially-distal bearing surface of said peripheral bearing members.
7. A cutting apparatus as recited in claim 6, wherein said knife member and said peripheral bearing members are cooperatively configured to provide a selected radial height-differential between the radially-distal edge of said knife member and the radially-distal bearing surface of said bearing members.

8. A cutting apparatus as recited in claim 1, further including at least one crimping member which is joined to said shaft member and is located proximate said knife member and positioned circumferentially adjacent said knife member.

9. A cutting apparatus as recited in claim 1, further including at least a cooperating pair of crimping members which are joined to said shaft member, and are located proximate said knife member and positioned generally adjacent to circumferentially opposed sides of said knife member.

10. A cutting apparatus as recited in claim 9, wherein said crimping members are configured to produce a securement seal.

11. An apparatus as recited in claim 1, wherein
said rotary cutter further includes at least one cutter insert member that is joined to said
rotary shaft member;
said cutter insert member provide a section of said peripheral surface of the rotary cutter;
said at least one knife member is substantially fixedly attached to said at least one cutter
insert member;
said at least one peripheral bearing member is joined to said at least one cutter insert
member; and
a circumferential location of said at least one cutter insert is substantially fixed on said
rotary cutter.

12. A cutting apparatus as recited in claim 1, further comprising a rotary anvil located
cooperatively adjacent said rotary cutter to provide a nip region between said rotary anvil
and said rotary cutter.

13. A cutting apparatus as recited in claim 12, wherein
said rotary anvil includes at least a pair of axially spaced-apart, peripheral bearing
elements joined to said rotary anvil, at least a portion of each peripheral bearing
element extending radially outward from an outer peripheral surface of said anvil
and extending circumferentially about said anvil;
each said peripheral bearing element of said anvil are configured to cooperatively engage
a corresponding peripheral bearing member of said rotary cutter.

14. A cutting apparatus as recited in claim 1, wherein said peripheral bearing members are substantially rigidly affixed to said shaft member.

15. A cutting apparatus as recited in claim 1, wherein at least one of said peripheral bearing members extends discontinuously along the circumferential-direction of said rotary cutter.

16. A cutting apparatus as recited in claim 1, further including a forcing mechanism which operatively urges said rotary cutter against said rotary anvil.

17. A cutting process, comprising
rotating a rotary cutter which has an outer peripheral surface and includes a rotary shaft member;

wherein

at least one knife member has been joined to said shaft member, at least a portion of said knife member extending axially along said shaft member and extending radially outward from said shaft member;

at least a pair of axially spaced-apart peripheral bearing members have been joined to said shaft member, at least a portion of each peripheral bearing member extending radially outward from said shaft member and extending circumferentially around said shaft member.

18. A process as recited in claim 17, wherein said knife member has been substantially fixedly attached to said shaft member.

19. A process as recited in claim 17, further including counter-rotating a rotary anvil which has been located cooperatively adjacent said rotary cutter to provide a nip region between said rotary anvil and said rotary cutter.

20. A process as recited in claim 17, wherein at least one crimping member has been joined to said shaft member and has been located proximate said knife member and positioned circumferentially adjacent said knife member.

21. A process as recited in claim 17, wherein a cooperating pair of crimping members have been joined to said shaft member, and have been located proximate said knife

member and positioned generally adjacent to circumferentially opposed sides of said knife member.

22. A process as recited in claim 17, further including urging said rotary cutter against said rotary anvil with a selected, resilient force.

23. A process as recited in claim 17, further including rotating said rotary cutter to provide a cutter, peripheral surface speed which is at least a minimum of about 80 cm/sec.